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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 09/393,752 | 09/10/1999 | RAM DANTU | 135544 | 3240 |

24587 7590 08/29/2005

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| EXAMINER | |
|---|---|
| KHUONG, LEE T | |
| **ART UNIT** | **PAPER NUMBER** |
| 2665 | |

DATE MAILED: 08/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/393,752 | DANTU ET AL. | |
| | Examiner | Art Unit | |
| | Lee Khuong | 2665 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *20 June 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *40 and 42-48* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *40 and 42-48* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4/4/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

*Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 40, 46-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinbashi (US 5,805,568) in view of Ellis (US 6,256,292) and further in view of Doshi et al. (US 6,021,113) hereinafter is referred as Doshi.

**Regarding claims 40 and 46-47,** Shinbashi teaches of a label switched ("tag", col.2, lines 58-67) router for receiving packet flows and routing the packet flows through a fiber optic (col. 1, line 65 - col. 2, line 5) ring network (Fig. 1 and 9-11). Shinbashi teaches of a "routing tag assembling/disassembling unit 8e" for labeling cells according to a state of the system being of the "present operating system" or the "spare operating system" (i.e. working or switched; col. 6, lines 25-61), and a routing table ("switching map" 150, Fig. 4; col. 11, lines 3-19) that includes label switched working paths and label switched protection paths (col.16, lines 11-30). Also disclosed is a network interface unit (8, Fig. 2 and Fig. 3) that inserts a routing label on packet ("routing tag assembling/disassembling unit 8e", col. 16, lines 20-27) and converts the packets to a synchronous optical signal for transmission of the fiber optic ring network ("STS terminal unit 8f", col. 7, lines 52-58), and a network condition unit for receiving and storing a failure indication in the form of an OAM cell ("OAM cell assembling/disassembling unit 8g", col. 15, line 66 - col. 16, line 13). Shinbashi further teaches that in response to receiving the failure

indication ("OAM cell", col. 15, lines 39- 50), a protection path switching (120, Fig. 4, col. 16, lines 6-13) unit for determining packets that are to be transmitted on working paths affected by the failure and re-labeling the packets for transmission on a label switched protection path in the fiber optic ring network (col. 3, lines 31-40; col. 16, lines 13-30). In other words, the routing tag assembling/disassembling units 8e of the present and spare (working and switched) and changes the value of the tags (labels) to the value previously used by the other unit upon detection of failure, thus switching from working to switched protection path.

Shinbashi fails to explicitly teach of the failure indication being contained in the overhead of a synchronous optical signal that indicates a failed link or congested traffic conditions from the fiber optic ring network.

Ellis teaches of a protection path switched technique for use in a fiber optic ring network ("Sonet" abstract; Fig. 3-5 and 13) that includes a failure indication in the overhead of the synchronous optical signal ("K1 and K2 bytes", col. 1, lines 39-47).

At the time of the invention, it would have been obvious to one of ordinary skill in the art to transmit the failure indication in the overhead of the synchronous optical signal of Shinbashi.

One of ordinary skill in the art would have been motivated to do this because AIS signals commonly used in the LOH of SONET systems could easily be exchanged for the AIS signal transmitted in the OAM cell of Shinbashi (col. 8, lines 32-40) by making use of the STS terminal unit 8f of Shinbashi that converts ATM cells into signals for transmission on a SONET network (col. 4, lines 60-67; col. 7, lines 51-58).

Doshi teaches the failure indication that indicates a congested traffic conditions from the fiber optic ring network (step 256, Fig. 13B, col. 26 line 27 – col. 27, line 25)

At the time of the invention, it would have been obvious to one of ordinary skill in the art to transmit the failure indication that indicates a congested traffic conditions from the fiber optic ring network of Doshi into the failure indication in the overhead of the synchronous optical signal of Ellis.

One of ordinary skill in the art would have been motivated to do this to provide efficient use of the spare link (col. 7, lines 12-34).

**Regarding claim 48,** Shinbashi teaches of a label switched ("tag", col.2, lines 58-67) router for receiving packet flows and routing the packet flows through a fiber optic (col. 1, line 65 - col. 2, line 5) ring network (Fig. 1 and 9-11). Shinbashi teaches of a "routing tag assembling/disassembling unit 8e" for labeling cells according to a state of the system being of the "present operating system" or the "spare operating system" (i.e. working or switched; col. 6, lines 25-61); network condition unit periodically ("time division multiplexing", col. 5, lines 53-62) determining if a failure has occurred in adjacent link to the label switched router in a failure indication in the form of an OAM cell ("OAM cell assembling/disassembling unit 8g", col. 15, line 66 - col. 16, line 13). Also disclosed is a network interface unit (8, Fig. 2 and Fig. 3) that inserts a routing label on received packet ("routing tag assembling/disassembling unit 8e", col. 16, lines 20-27), converts the packets to a synchronous optical signal for transmission of the fiber optic ring network ("STS terminal unit 8f', col. 7, lines 52-58). Shinbashi further teaches that in response to receiving the failure indication ("OAM cell", col. 15, lines 39- 50), a protection path switching (120, Fig. 4, col. 16, lines 6-13) unit for determining packets that are to be transmitted on working paths affected by the failure and re-labeling the packets for transmission on a label

switched protection path in the fiber optic ring network (col. 3, lines 31-40; col. 16, lines 13-30). In other words, the routing tag assembling/disassembling units 8e of the present and spare (working and switched) and changes the value of the tags (labels) to the value previously used by the other unit upon detection of failure, thus switching from working to switched protection path.

Shinbashi fails to explicitly teach of the failure indication being contained in the overhead of a synchronous optical signal that indicates a failed link or congested traffic conditions from the fiber optic ring network.

Ellis teaches of a protection path switched technique for use in a fiber optic ring network ("Sonet" abstract; Fig. 3-5 and 13) that includes a failure indication in the overhead of the synchronous optical signal ("K1 and K2 bytes", col. 1, lines 39-47).

At the time of the invention, it would have been obvious to one of ordinary skill in the art to transmit the failure indication in the overhead of the synchronous optical signal of Shinbashi.

One of ordinary skill in the art would have been motivated to do this because AIS signals commonly used in the LOH of SONET systems could easily be exchanged for the AIS signal transmitted in the OAM cell of Shinbashi (col. 8, lines 32-40) by making use of the STS terminal unit 8f of Shinbashi that converts ATM cells into signals for transmission on a SONET network (col. 4, lines 60-67; col. 7, lines 51-58).

Doshi teaches the failure indicates a congested traffic conditions from the fiber optic ring network (step 256, Fig. 13B, col. 26 line 27 – col. 27, line 25)

At the time of the invention, it would have been obvious to one of ordinary skill in the art to transmit the failure indicates a congested traffic conditions from the fiber optic ring network of Doshi into the failure indication in the overhead of the synchronous optical signal of Ellis.

One of ordinary skill in the art would have been motivated to do this to provide efficient use of the spare link (col. 7, lines 12-34).

3. Claims 42-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinbashi in view of Ellis and further in view of Doshi, and further in view of Chaudhuri (US 6,324,162).

**Regarding claim 42,** Ellis further teaches of a fiber optic ring being a SONET network and the overhead failure signals being included in the K1 and K2 bytes of the overhead "Sonet" abstract; Fig. 3-5 and 13; "K1 and K2 bytes", col. 1, lines 39-47).

At the time of the invention it would have been obvious to one of ordinary skill in the art to transmit the failure signals of Shinbashi ("OAM cells") in the K1 and K2 bytes of the overhead because it is standard to use the K1 and K2 bytes (or SOH, signal overhead) in a SONET frame to transmit management and control information, including failure indication. The system of Shinbashi using a SONET communication system where ATM cells are converted to a format compatible with transmission over the fiber optic network (STS; col. 13, line 63 - col. 14, line 2), could easily utilize the STS terminal unit 8f to include any failure indication signals (OAM cells) in the K1 and K2 bytes of the SONET frame generated.

One of ordinary skill in the art would have been motivated to do this so that information regarding failures in the network can be disseminated throughout the network, to network elements.

**Regarding claim 43,** Ellis further teaches of a SDH (synchronous digital hierarchy) network being basis for the SONET standard (col. 1, lines 15-17). As is known in the art, SONET standard is the North American equivalent to the SDH standard used in Europe.

At the time of the invention it would have been obvious to one of ordinary skill in the art to implement in the invention of Shinbashi in an SDH network, and to include the failure indication in the SDH overhead.

One of ordinary skill in the art would have been motivated to do this so that the network fault restoration technique could be transferable to European synchronous communications over optical fibers, and so that information regarding network failures can be communicated through the network via the overhead to be extracted and analyzed by network elements, rather then via the payload of a synchronous optical signal.

4. Claims 44-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinbashi in view of Ellis and further in view of Doshi, and further in view of Bentall et al. (US 6,282,170) hereinafter is referred as Bentall.

**Regarding claims 44 and 45,** as discussed with the rejection of claim 40 above, Shinbashi and Ellis both teach of networks transmitting ATM cells (see both abstracts).

Shinbashi and Ellis fail to explicitly teach of including a quality of service rating in the routing label.

Bentall teaches of a path restoration technique (abstract) in a network transmitting ATM cells where the network is a SONET network (col. 6, lines 35-37). Bentall further teaches of

utilizing quality of service in the restoration process, by assigning quality of service parameters to paths and routing traffic based on service QOS of individual cells (col. 1, lines 14-19; col. 17, line 65 - col. 18, line 5). In ATM systems the QOS of each cell is inspected to carry out routing; therefore, prioritization based on quality of service will be carried out on a packet by packet basis. QOS ratings are commonly used in ATM systems, such as the system disclosed by Shinbashi.

At the time of the invention it would have been obvious to one of ordinary skill in the art for the ATM cell assembling unit 8b of Shinbashi to include a QOS rating with the cell so information may be carried throughout the network consisting of different service classes.

One of ordinary skill in the art would have been motivated to do this so that higher priority data streams could be assured greater level of service, even in the event of system failures.

### *Response to Arguments*

5. Applicant's arguments filed on 6/20/2005 have been fully considered but they are not persuasive.

Regarding to applicant's argument on page 5, lines 15-21, "As discussed in the specification at pages 12, lines 12 through 21, the types of failures that prompt the node to generate overhead signal advising of a failure include not only the layer 1 and layer 2 failures, but also the layer 3 types of network conditions", those features are not considered as they are not stated in claim 40.

Regarding to applicant's argument on page 9, lines 6-8, "As discussed in the specification at pages 12, lines 12 through 21, the types of failures that prompt the node to generate overhead signal advising of a failure include not only the layer 1 and layer 2 failures, but also the layer 3 types of network conditions", those features are not considered as they are not stated in claim 46.

Regarding to applicant's argument on page 10, lines 28-31, "As discussed in the specification at pages 12, lines 12 through 21, the types of failures that prompt the node to generate overhead signal advising of a failure include not only the layer 1 and layer 2 failures, but also the layer 3 types of network conditions", those features are not considered as they are not stated in claim 48.

*Conclusion*

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lee Khuong whose telephone number is 571-272-3157. The examiner can normally be reached on 9AM - 5PM.

8. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on 571-272-3155. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

9. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lee T. Khuong
Examiner
Art Unit 2665

ALPUS H. HSU
PRIMARY EXAMINER